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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/869,589 06/05/97 STROLLE

C SAR-12082

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LM02/0423

EXAMINER

BURD, K

ART UNIT

PAPER NUMBER

2734

DATE MAILED:

04/23/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**



# Office Action Summary

Application No.

08/869,589

Applicant(s)

Strolle

Examiner

Kevin Burd

Group Art Unit

2734



☒ Responsive to communication(s) filed on Jun 5, 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-16 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☒ Claim(s) 11 is/are allowed.

☒ Claim(s) 1, 6-10, 12, 15, and 16 is/are rejected.

☒ Claim(s) 2-5, 13, and 14 is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---



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## DETAILED ACTION

### *Information Disclosure Statement*

1. The search report cited in the PTO FORM-1449 under section OTHER document is not considered prior art. Therefore, it has been crossed out.

### *Specification*

2. The disclosure is objected to because of the following informalities:

On page 6 line 24, the "a subtractor 312" and "a loop filter 314" are mislabeled . The subtractor is labeled 326 and the loop filter is labeled 328 according to figure 2.

The following information on page 7 lines 18-23 is confusing. "If the upper bandedge frequency has a larger amplitude than the lower bandedge frequency, the pre-equalizer attenuates the lower bandedge frequency signal by an amount ( $\alpha$ ) that is proportional to the signal difference ( $\omega$ ). If the converse occurs, i.e., lower bandedge signal larger than the upper bandedge signal, then the pre-equalizer attenuates the lower bandedge signal." As stated, the lower bandedge frequency is attenuated in both cases.

Appropriate correction is required.



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***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 6-8 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. On page 6 lines 29-30 and page 7 line 1 and lines 14-15, the Hilbert filter characteristics and the pre-equalizer characteristic are given in matrix form. This is confusing since all prior art gives filter characteristics in the form of an algorithm.

Clarification is requested.

6. Claims 6-8 recite these matrix forms which can not be understood

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "said first Hilbert filter" recited in claim 6 line 1 lacks antecedent basis.



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***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 9-10, 12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ungerboeck (U.S. 4,969,163) in view of Herzberg et al. (U.S. 5,881,108).

Regarding claim 1, Ungerboeck discloses an apparatus and method for timing control of modem receivers comprising the following elements.

The receiver front-end elements that converts the received carrier-modulated signal to a sampled complex-baseband signal.

Two complex baseband filters used to extract a bandedge signal from the broadband signal. "The two bandpass filters BPF-U and BPF-L extract from the baseband signal the components in the upper and lower roll-off regions." is stated on column 5 lines 40-43.

A number of elements as shown on figure 1 that together generate a control (CLOCK) signal in response to the bandedge signal. This control signal eventually will adjust the carrier-modulated signal and be inputted again into the apparatus.



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However, Ungerboeck fails to teach the use of a pre-equalizer to adjust the timing control of the bandedge signal in response to the said control signal.

Herzberg et al. teaches the use of a pre-equalizer to adapt the pre-equalizer coefficients in response to a control signal.

Therefore, it would have been obvious for one skilled in the art at the time of applicant's invention to modify the apparatus of Ungerboeck, incorporating the pre-equalizer as taught by Herzberg et al., to demonstrate that the pre-equalizer used to adjust the timing control of the modem receivers in response to control signal, which is in response to a bandedge signal would be useful rather than altering the original input signal with the output control (CLOCK) signal.

In addition, Ungerboeck speaks of timing control and not of amplitude equalization but the process of amplitude equalization explained in the application is nearly identical to that of timing control discussed by Ungerboeck.

Regarding claim 9, Ungerboeck and Herzberg et al. disclose an apparatus and method for timing control of modem receivers as stated above in regarding claim 1.

However, it is not stated that the pre-equalizer attenuates a particular bandedge of the broadband signal in response to the control signal.

It is well known in the art, that an equalizer will have a transmitted data stream inputted and utilizing updated equalization coefficients provided from a control signal



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source compensate for any lost data. This compensation will require attenuation and amplification to occur if the need arises.

Regarding claim 10, the same reasoning occurs as in regarding claim 9.

Regarding claim 12, Ungerboeck discloses an apparatus and method for timing control of modem receivers comprising the elements as stated above in regarding claim 1.

However, Ungerboeck fails to teach the use of a pre-equalizer to adjust the timing control of the bandedge signal in response to the said control signal.

Herzberg et al. teaches the use of a pre-equalizer to adapt the pre-equalizer coefficients in response to a control signal.

Therefore, it would have been obvious for one skilled in the art at the time of applicant's invention to modify the apparatus and method of Ungerboeck, incorporating the pre-equalizer as taught by Herzberg et al., to demonstrate that the pre-equalizer adjusts the timing control of the modem receivers in response to control signal, which is in response to a bandedge signal would be useful rather than altering the original input signal with the output control (CLOCK) signal.

Regarding claim 15, the same reasoning occurs as in regarding claim 9.

Regarding claim 16, the same reasoning occurs as in regarding claim 9.



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***Allowable Subject Matter***

11. Claims 2-5 and 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claim 11 is allowed.

13. The following is a statement of reasons for the indication of allowable subject matter:

None of the cited references fails to teach the further arrangement of the band edge signal processor, the apparatus for equalizing the amplitudes of the bandedges of the broadband signal and the method for equalizing the amplitude of the bandedges of the broadband signal as recited in the claims 2, 3, 4, 5, 13 and 14 respectively.

Claim 11 is allowable because none of the cited references teach the arrangement of pre-equalizer, bandedge filter, a first Hilbert filter, a second Hilbert filter, a first magnitude processor, a second magnitude processor, a subtractor and a loop filter in order to form the apparatus for equalizing the amplitudes of the bandedges of a broadband signal as recited in claim 11.

***Conclusion***

14. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**



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(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6743, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

*Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4900.



DON N. VO  
PRIMARY EXAMINER



Kevin M. Burd  
PATENT EXAMINER  
April 21, 1999